**1.Topic: Research on Object Detection of Overhead Transmission Lines Based on Optimized YOLOv5s**

**Review:**  
Power companies can increase inspection efficiency by using object detection of overhead transmission wires. Aerial photos, however, often include complicated backdrops and little objects, and conventional algorithms are incapable of identifying these subtleties.correctly. transmission lines. This study creates an object identification approach based on YOLOv5s, an optimised version of You Only Look Once, to solve this issue. With the aim of achieving the highest possible detection accuracy and the simplest possible calculation, this approach is created to be engineering-friendly. First, a larger scale detection layer and jump connections are added to the network to enhance the detection accuracy of small objects. The feature correlations between spatial and channel dimensions are merged using a self-attention technique, which might reduce interference from complicated backdrops

**References[1]:**  
Gu, J.; Hu, J.; Jiang, L. Object detection of overhead transmission lines based on improved YOLOv5s. In Proceedings of the 12th International Conference on Power and Energy Systems (ICPES), Guangzhou, China, 23–25 December 2022; pp. 388–392.

Yang, L.; Fan, J.; Liu, Y. A review on state-of-the-art power line inspection techniques. IEEE Trans. Instrum. Meas. 2020, 69, 9350–9365. [CrossRef]

**2.Topic: Evaluation of Deep Learning YOLOv3 Algorithm for Object Detection and Classification**

**Review:**  
An object identification and classification deep learning model is called You Only Look Once version 3 (YOLOv3). It is a model of a single neural network using features. takes the incoming photos and concurrently estimates bounding boxes for all image types. The deep learning model based on the YOLOv3 architecture was trained experimentally using Tensor Flow as the deep learning framework. Using the Adaptive Moment Estimation Optimizer (ADM optimizer) with the data sets PASCAL VOC 2007 and 2012, the training procedure has been carried out. The VOC 2007 test data-set is then used to evaluate the trained model. The final outcomes assess the object identification and categorization capabilities of the YOLOv3 deep learning model.

**References[2]:**  
J. Redmon, S. Divvala, R. Girshick, and A. Farhadi, “You Only Look Once: Unified, Real-Time Object Detection,” 2016 IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2016.

**3.Topic: A Comparative Study of Various Object Detection Algorithms and Performance Analysis**

**Review:**  
In the fields of computer vision and machine learning, object discovery is a rapidly evolving technology. One of the main goals in the deep learning discipline is computer vision. Object detection is a method that determines whether an object is present in a picture or a video. To increase job efficiency, object detection may be applied in a variety of contexts. Object detection has various uses, including in home automation, self-driving automobiles, population census, traffic monitoring, military defensive systems, sports, industrial activities, robots, and the aviation sector. Several methods, including R-CNN, Fast R-CNN, Faster R-CNN, Single Shot detector (SSD), and YOLO v3, can be used to detect objects. These algorithms are compared, and the outcomes and performances of each are examined.

**References[3]:**

R. Girshick, J. Donahue, T. Darrell, J. Malik, “Rich Feature Hierarchies for Accurate Object Detection and Semantic Segmentation”, IEEE Conference on Computer Vision and Pattern Recognition, Columbus, USA, pp. 580-587, 2014.

**4.Topic:** **A Practice for Object Detection Using YOLO Algorithm**

**Review:**  
When we see photographs or movies, we can quickly find and recognise the items that interest us. The only way for humans to pass this knowledge to computers is through object detection, which involves finding and recognising the item. Object detection has applications in many different fields, including video surveillance, image retrieval systems, self-driving cars, and many more. Although there are several techniques available for object identification, we'll be concentrating on the YoloV3 approach. "You Only Look Once" is referred to as YOLO. We can identify the things in the frame thanks to the high accuracy of the YOLO model. YOLO has a very different strategy. It uses a neural network to analyse the complete image rather than just selected areas to forecast

**References[4]**:

Rodrigo Verschae, Javier Ruiz-del-Solar, “Object Detection: Current and Future Directions Perspective”, Article in Frontiers in Robotics and AI , December 2015.

**5.Topic: YOLOv2 based Real Time Object Detection**

**Review:**

Using object detection in image and video processing might be considered a basic method of finding items. It's regarded as one of the more hard and tough challenges in computer vision. Many machine learning and deep learning models, including F-CNN, RNN, and YOLO, have been suggested in the past. The current situation calls for the detection method to be end-to-end and to calculate in the shortest amount of time possible. The foundation for producing many other types of scientific aspects, such as the majority of traffic signals in a certain area or the total number of objects in a given image, is real-time object identification and classification from photographs and video.

**References[5]:**

Swetha M S, et al. “Object Detection and Classification in Globally Inclusive Images Using Yolo” proceedings of the International Journal of Advance Research in Computer Science and Management Studies (IJARCM) in Dec 2018

**6.Topic: YOLO (You Only Look Once) Technology and Its’ Impact in Field of Object Detection**

**Review:**  
This essay will go into great detail regarding YOLO (You Only Look Once), a ground-breaking innovation in object detection, YOLO technology, the benefits and dangers it poses, and how this technology will significantly influence future generations. Two review papers are taken into account that describe YOLO technology and the most recent iteration of YOLO, known as YOLOv3. The properties of YOLO technology, as well as its benefits, limitations, and advancements, are also covered. In this new updated version of the YOLO technology, the neural network YOLOv3's network design, architecture, and training are discussed. Its performance against its predecessor is also compared. What effects YOLO technology will have in the future and how it will change. A good understanding of YOLO's capabilities

**References[6]:**

M Everingham, S M A Eslami, L Van Gool, C K I Williams, J Winn, A Zisserman

The pascal visual object classes challenge: A retrospective

International Journal of Computer Vision, volume 111, issue 1, p. 98 - 136

Posted: 2015-01

**7.Topic:** **Real-Time Object Detection with Pre-eminent Speed and Precision using YOLOv4**

**Review:**

A computer vision method that has captured the interest of Object recognition is the best method for localising and identifying items in the world. Bounding boxes are drawn around the recognised things, giving them precise names. item detection is more complex than classification since it not only identifies the item in the picture but also pinpoints its precise location. YOLO is a well-known method for accurate and speedy detection. A trustworthy real-time object identification method that can recognise several things in a single frame is called YOLO (You only look once). Furthermore, compared to other recognition systems, it recognises objects more quickly and accurately. It can process 45 frames per second and can estimate motion, making it one of the best and most flexible computer vision algorithms.

**References[7]:**

A gentle introduction to YOLO V4 for object detection in Ubuntu 20.04. (2020, May 16). Robotics, Computer Vision, Embedded System, AI. https://robocademy.com/2020/05/01/a-gentle-introduction-to-yolo-v4- for-object-detection-in-ubuntu-20-04/#How\_YOLO\_work.

**8.Topic : Video-based Object Detection Using Voice Recognition and YoloV7**

**Review:** Recent advances in Artificial Intelligence (AI) Several new types of applications have been able to emerge over the years. Specifically, identifying individuals and objects from sequences of A fascinating area of study has been images or videos. Even if advanced AI models have made significant progress, there still needs to be specialised research that aids in the recovery of lost objects from a collection of video sequences. In this research, we build an AI-based solution to this problem using speech recognition and the Yolo (You Only Look Once) real-time object identification system. This method presupposes that the items of interest have already been recorded in the past and stored in the dataset. A voice command is made by the user to locate a lost item..

**References[8]:**

J. M. Helm et al., ”Machine learning and artificial intelligence: definitions, applications, and future directions”. Current reviews in musculoskeletal medicine, 13(1), pp. 69-76.

**9.Topic : A Literature Review of Object Detection using YOLOv4 Detector**

**Review:**

In an advanced version of image classification called object detection, a neural network predicts the presence of objects in a picture and shows them as bounding boxes to help you find them. Object detection techniques before YOLO used classifiers to do detection, while YOLO suggests using an end-to-end neural network that makes detection possible from the beginning. Bounding box predictions and class probabilities combined. In addition to categorising and identifying items in an image, object detection also involves localising those objects and drawing bounding boxes around them. Applications for it include fields like face detection, vehicle detection, autonomous vehicle detection, and pedestrian identification on roadways.

**References[9]:**

# Shraddha Mane, Prof.Supriya Mangale "Moving object detection and tracking Using Convolutional Neural Networks" Proceedings of the Second International Conference on Intelligent Computing and Control Systems (ICICCS 2018) IEEE Xplore Compliant Part Number: CFP18K74-ART; ISBN:978-1-5386- 2842-3

**10.Topic: Drone Detection Using YOLOv5**

**Review:** Concerns about abuse have been raised by the nation's airspace's fast growing presence of drones, particularly those used for commercial and recreational purposes. A potential answer to the problem of potential drone misuse, such as drug smuggling and privacy invasion, is provided by autonomous drone detecting systems. Due to comparable objects in the sky, such as aeroplanes and birds, detecting drones can be challenging. Additionally, for high accuracy, automated drone detection systems need to be trained with a lot of data. Additionally, real-time detection is required, but this calls for highly configured hardware, such a graphics processing unit (GPU). You Only Look Once version 5 (YOLOv5), a one-shot detector that can train the You Only Look Once (YOLO) model, was proposed in the current work to address these issues.

**References[10]:**

Aydin, Burchan, and Subroto Singha. "Drone Detection Using YOLOv5." *Eng* 4.1 (2023): 416-433.